## Abstract of the Disclosure

In order to accurately and stably estimate the conditions of a running tire, a vehicle is equipped with a sensor-incorporating tire having, at an equal distance from the center in the axial direction of the tire, pressure sensors (11A, 11B) buried in a tread rubber positioned on the outer side in the radial direction of the tire belt layer of a tire tread portion and on the inner sides in the radial direction of tread blocks, the contact length  $L_{\scriptscriptstyle A}$  of the car body side and the contact length  $L_{\mathtt{B}}$  of the opposite side of the center in the axial direction of the tire are detected by using the duration times of pressure values from the pressure sensors (11A, 11B) and a wheel speed from a wheel speed sensor (14), and the ratio R =  $L_{\text{A}}/L_{\text{B}}$  of the contact length  $\boldsymbol{L}_{\boldsymbol{A}}$  to the contact length  $\boldsymbol{L}_{\boldsymbol{B}}$  is computed to estimate lateral force generated by the tire, or the average contact length  $L_{\mbox{\scriptsize AB}}$  which is the average value of the contact lengths  $L_{\mathtt{A}}$  and  $L_{\mathtt{B}}$  is computed to determine a load applied to the tire.